

## Characteristics of 262 adults with skin picking disorder

Jon E. Grant<sup>a,\*</sup>, Samuel R. Chamberlain<sup>b,c</sup>

<sup>a</sup> Department of Psychiatry & Behavioral Neuroscience, University of Chicago, Pritzker School of Medicine, Chicago, IL, USA

<sup>b</sup> Department of Psychiatry, Faculty of Medicine, University of Southampton, UK

<sup>c</sup> Southern Health NHS Foundation Trust, Southampton, UK

### ARTICLE INFO

#### Keywords:

Skin picking  
Phenomenology  
Comorbidity

### ABSTRACT

**Introduction:** Skin picking disorder (also known as excoriation disorder or dermatillomania) is a common mental health disorder currently classified as an obsessive-compulsive and related condition. Despite being first described in the 1800s, very little is known about its phenomenology and clinical presentation. Most information about this disorder to date is based on online surveys rather than in-person assessments.

**Methods:** Clinical and demographic data were collected from individuals with skin-picking disorder taking part in research studies, using in-person assessments comprising validated instruments. Descriptive information was presented as to the nature of skin picking disorder.

**Results:** The sample comprised 262 individuals, mean age 32.5 years, being 87% female. The peak age of onset of symptoms was 12.9 years, and most affected individuals (>90%) had symptom onset before age of 20 years. Typically, individuals reported picking from multiple body sites (most common was the face), and the most frequent triggers were stress and the 'feel' (i.e. texture) of the skin. Comorbidities were common, including trichotillomania, depression, generalized anxiety disorder, and impulsive/compulsive disorders (especially attention-deficit hyperactivity disorder and obsessive-compulsive disorder). The majority of people with the disorder (87.1%) had never received treatment. Of those who had received treatment in the past, 87% reported that they found the treatment helpful for their symptoms.

**Discussion:** This study sheds new light on the clinical presentation and phenomenology of skin picking disorder. Results highlight the need for further research into its clinical presentation, longitudinal course, and treatment approaches.

### 1. Introduction

Skin picking (excoriation) disorder, also referred to as dermatillomania and neurotic excoriation, is characterized by the failure to resist impulses to pick at one's own skin [1]. Skin picking disorder was first described by Erasmus Wilson over a century ago [2]. Although skin picking disorder was recognized as a distinct psychiatric disorder classified in the Diagnostic and Statistical Manual Version 5 (DSM-5) under the category of "obsessive compulsive and related disorders", most references to it are limited to small case series ( $n < 60$ ) that used various diagnostic criteria as they were performed before the DSM nosological system had included skin picking disorder [3–8]. Larger studies have had sample sizes of up to 760, but these are generally from online surveys (i.e. did not include any gold-standard in-person clinical assessments), also before DSM-5 and where exclusionary criteria were not

assessed [9,10]. Only the Pirdogan et al. study [11] has been published after the codification of skin picking disorder in the DSM-5 and has had a large sample size ( $n = 131$ ).

Skin picking disorder has been described as a chronic condition [12], primarily affecting females [13,14] (but see [15]), with an unclear age of onset. Some studies have found a bimodal age of onset while others report tri-modal onsets in childhood, young adulthood/adolescence and possibly middle-age [5,6,16]. A fragmented clinical picture of skin picking disorder can be constructed from the literature of patterns of picking (e.g., some having urges while others pick due to boredom) [6,7], associated behaviors/consequences (e.g., feelings of gratification or calming) [5,7], and comorbidity with other psychiatric disorders (e.g., wide ranges of specific comorbidities across studies [3,5,6]); however, few of these variables have been studied together in a single large group of subjects using DSM-5 criteria.

\* Corresponding author at: Department of Psychiatry & Behavioral Neuroscience, University of Chicago, 5841 S. Maryland Avenue, MC 3077, Chicago, IL 60637, USA.

E-mail address: [jongrant@uchicago.edu](mailto:jongrant@uchicago.edu) (J.E. Grant).

<https://doi.org/10.1016/j.comppsy.2022.152338>

Available online 14 July 2022

0010-440X/© 2022 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

The purpose of the present study was to use in-person interviews to construct a detailed demographic and phenomenological picture of skin picking disorder and to assess psychiatric comorbidities and family history in a large sample.

## 2. Methods

### 2.1. Participants

Adults with skin picking ( $n = 262$ ) who had participated in studies on the phenomenology of skin picking, brain imaging studies, neurocognitive studies, or clinical trials on pharmacotherapy were included. Inclusion criteria for all studies were: current skin picking disorder according to the Diagnostic and Statistical Manual of Mental Disorder 5 – DSM 5 (subjects recruited before 2013 were retrospectively examined using the DSM-5 criteria), provision of written informed consent, and the ability to understand the study and the consent form. Exclusion criteria were: bipolar I disorder or schizophrenia. Data at baseline (first visit) were used for the current study. The sample was enlisted in the metropolitan areas of Chicago, IL, USA through advertisements on the internet, public places and newspapers and via clinical referrals. Participants for all studies were recruited in the same fashion. Participants were compensated with a gift card to local department stores.

### 2.2. Ethics

After receiving a complete description of the study, participants provided written informed consent. All procedures involving human subjects were approved by the Institutional Review Board at the University of Chicago. The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

### 2.3. Measures

Participants were assessed for age, gender, marital status, educational level and racial-ethnic group (participants self-identified their racial group based on a single open-ended question). In addition, a semi-structured clinical interview was used to examine the clinical features of skin picking disorder. Clinical interviews were undertaken by trained raters using the Structured Clinical Interview for DSM [17].

Skin picking severity was assessed using the Skin Picking Symptom Assessment Scale (SP-SAS) and the Clinical Global Impression severity scale. The SP-SAS is a 12-item self-report questionnaire [18]. The items assess urges; picking behavior; anticipatory excitement/tension; pleasure in picking; emotional and personal problems due to picking behavior. The final score ranges between 0 and 48. The CGI is a 7-item clinician administered Likert scale to assess the severity of gambling disorder. The CGI severity scale ranges from 1 = “not ill at all” to 7 = “among the most extremely ill” [19].

In addition, overall psychosocial functioning was quantified using the Sheehan Disability Scale (SDS [20]), and anxiety and depression were examined using the Hamilton Anxiety Rating Scale (HAM-A [21]) and the Hamilton Depression Rating Scale (HAM-D [22]).

Each subject underwent a semi-structured interview to examine psychiatric disorders, including skin picking and trichotillomania, in first-degree relatives. No relatives were interviewed directly for this study.

### 2.4. Statistics and reporting

Descriptive characteristics of the sample are presented.

## 3. Results

The pooled sample comprised 262 people with skin picking disorder, of mean (standard deviation, SD) age 32.5 (11.5) years, with 228 (87.0%) being female. 241 (92.0%) had completed to college level education or higher. The number and percentages of people in different racial-ethnic categories were: Caucasian 206 (79.9%), Mixed Race 1 (0.4%), African American 12 (4.7%), Latino/Hispanic 21 (8.1%), Asian 9 (3.5%), and Native American 1 (0.4%).

The mean (SD) age at onset of skin picking symptoms was 12.9 (8.5) years. Of those who had ever received a diagnosis in the past for skin picking disorder (83 individuals, constituting 31.7% of the sample) – the mean age at first diagnosis had been 27.7 (14.2) years.

As can be seen in Fig. 1, there was a peak onset of symptoms at age 11–15 years, and this followed a fairly normative distribution albeit with positive skew; in addition, there was another small group of individuals (8.8% of the entire sample) with onset of symptoms at age 30 and above, appearing to form a separate distribution on the histogram.

In terms of clinical severity, the mean (SD) SP-SAS score was 28.6 (6.4) and CGI-Severity 4.3 (0.7), being indicative of typically moderately severe symptoms on both instruments. SDS total scores were mean 10.2 (6.9), reflecting typically mild to moderate impairment. At the time of assessment, average scores of HAM-D were 4.4 (3.8) and for HAM-D 4.5 (3.8).

In terms of picking sites reported by the participants, Table 1 shows this distribution. The majority of people reported picking from multiple sites but not ‘everywhere’. The most commonly endorsed picking sites were the face and arms. Common triggers for skin picking (Table 2) endorsed by at least 40% of the sample were feel of skin, stress, and sight of the skin. Several potential triggers for picking were rarely endorsed.

In terms of lifetime psychiatric comorbidities (see Table 3), the most common of these were trichotillomania (24.4% of the sample), generalized anxiety disorder (21.8% of the sample), major depressive disorder (reported by 21.5% of the sample), and ADHD (8% of the sample).

The status of prior treatments is summarized in Table 4. It can be seen that only 14.5% of patients had ever received medication treatment for the disorder, and only 19.1% had received any psychological treatment for the disorder. 78% of affected individuals had never received any medication or therapy treatment for their symptoms. The most common pharmacological treatments that participants reported receiving for skin picking disorder included mood stabilizers, psychostimulants, antipsychotic medication, serotonin reuptake inhibitors, and mixed reuptake inhibitors. For psychological treatments, most participants described these as ‘talk therapy’ i.e. did not provide descriptive information about the exact nature of the therapy.

In terms of family history, 113 subjects (43.1%) had at least one first-degree relative with a psychiatric disorder. The most common were the following: 58 (22.1%) reported having at least one first-degree relative with trichotillomania, 34 (13.0%) reported having at least one first degree-relative with skin picking disorder, 62 (23.7%) reported at least one relative with major depressive disorder, 45 (17.2%) reported a first-degree relative with a substance use/alcohol use disorder, 20 (7.6%) had any anxiety disorder, 8 (3.1%) reported a first-degree relative with obsessive-compulsive disorder, and 2 (0.8%) had a first-degree relative with ADD/ADHD.

## 4. Discussion

This study examined the characteristics of a large group of adults with skin picking disorder. The results showed that skin picking most often begins at a young age (that is, in the early teens) and that onset after the age of 20 years is relatively less common (8.8% of the sample). These data suggest that previous findings of onset in young adulthood or middle age, although possible, are clearly in the minority of cases. Most of the subjects in this sample were female (87%) and this is in keeping with data from clinical treatment trials (e.g. [23]) but differs from the

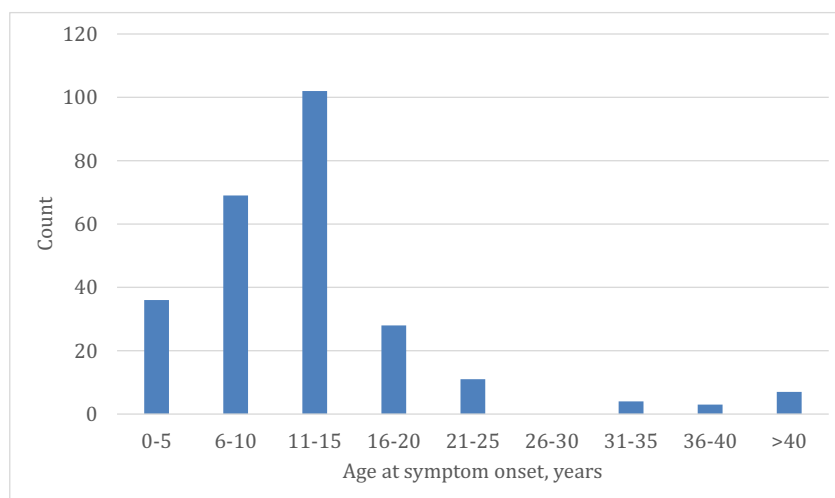


Fig. 1. Distribution of age at symptom onset.

**Table 1**  
Percentage of the sample reporting picking from particular areas/sites.

Site	Percentage of sample
Picking from multiple sites	73.8%
Picking from ‘everywhere’	5.7%
Face	55.1%
Arms	28.3%
Fingers	23.2%
Scalp	21.0%
Torso	20.3%
Legs	20.3%
Hands	18.1%
Back	17.6%
Feet	10.5%
Pubic area	2.2%

**Table 2**  
Percentage of the sample reporting particular triggers for picking.

Triggers for Picking	Positive endorsement
Feel of the skin	66.9%
Under stress	55.2%
Sight of skin	43.4%
Boredom	38.2%
Thoughts or urges to pick	38.8%
Sedentary activities	35.0%
Feeling anxious/worried	24.3%
Feeling tired	5.2%
Feeling down or sad	3.7%
Loneliness	2.2%
Anger	2.2%

**Table 3**  
Overview of percentages of the sample with lifetime psychiatric co-morbidities.

Psychiatric Disorder	Percentage of Sample
Trichotillomania	24.4%
Major Depressive Disorder	21.5%
Generalized Anxiety Disorder	21.8%
Attention Deficit Hyperactivity Disorder	8.0%
Obsessive-compulsive Disorder	7.3%
Alcohol Use Disorder or Substance Use Disorder	6.1%
Any Eating Disorder	4.6%
Post-Traumatic Stress Disorder	2.7%
Body Dysmorphic Disorder	2.3%
Panic Disorder	2.3%
Bipolar II Disorder	1.6%

**Table 4**  
Percentages of the sample receiving previous treatments for picking.

Treatment Type	Percentage of the Sample
Any Past Treatment for picking?	
No	78.1%
Yes	22.0%
Previous medication for picking?	
No	85.5%
Yes	14.5%
Of those who received medication, the % who found it helpful	77.8%
Of those who received medication, the % who found it somewhat helpful	11.1%
Of those who received medication, the % who found it not helpful	11.1%
Previous psychotherapy for picking?	
No	80.9%
Yes	19.1%
Of those who received treatment, the % who found it helpful	87.2%
Of those who received treatment, the % who found it somewhat helpful	6.4%
Of those who received treatment, the % who found it not helpful	6.4%

main large epidemiological study of prevalence that was conducted [15]. There might be a few explanations for the gender ratio found in this study. First, skin picking might be more common in women as these data reflect. The external epidemiological study, which was conducted using online surveys, might capture multiple levels of picking that do not meet DSM-5 criteria. Thus, although picking may be perhaps almost equally common in men and women, skin picking disorder might be more common in women. Second, the smaller number of male subjects in this study group may simply reflect a lesser tendency for men to seek help for skin picking disorder and therefore clinical samples skew toward more females. These findings mirror those reported for certain other related psychiatric disorders. For example, in obsessive-compulsive disorder (OCD), most general population epidemiological studies suggest similar rates in men and women overall (or if there are differences, they are minor and conflicting in direction), whereas clinical studies tend to recruit far more women than men with OCD [24–26].

In terms of picking sites, the typical person with skin picking disorder in our study reported picking from multiple sites, though the face was clearly the most common site. In prior work, the face was similarly also reported to be the most common picking site [9,16]. Participants reported diverse triggers for picking, with considerable variation across

people and most people reported several triggers. However, the majority of people (>55%) endorsed the ‘feel’ of the skin and experiencing stress as being key triggers. The ‘feel’ of skin being a trigger may fit with the idea that picking can be undertaken to “correct” something that feels “wrong” about the skin [9]; alternatively, and not mutually exclusively, picking in many cases may constitute a type of “focused” activity in which there is a drive to experience particular tactile sensations linked to grooming one’s self [27]. This is also common in the related condition of trichotillomania, where many patients will pull out hair with particular textures and often undertake other activities to appreciate or experience the texture of those hairs [28]. Stress as a self-reported trigger for picking is perhaps unsurprising. This fits with the idea that body-focused repetitive activities, such as picking, can serve a function to alleviate heightened arousal, in many affected individuals [29].

Skin picking disorder is associated with several other psychiatric conditions in the prior literature, most notably co-occurring trichotillomania, depression, and anxiety disorders. ADHD has often been omitted from previous assessments [15,30,31]. Here, the four most common comorbidities in skin picking disorder were trichotillomania (24.4%), major depressive disorder (21.5%), generalized anxiety disorder (21.8%), and ADHD (8.0%). It is also interesting that ADHD (8.0%) was slightly more common as a co-occurring disorder than OCD (7.3%) or body dysmorphic disorder (2.3%), two of the OCD spectrum disorders. Does this help us better understanding skin picking disorder nosologically? In DSM-5 skin picking disorder was included in the OCD chapter because of shared clinical traits. Interesting, thoughts and urges as triggers to picking were in a minority of those with skin picking disorder in the current sample. This aspect seems somewhat contrary to conceptualizations of skin picking as a form of OCD.

The comorbidity data may further suggest that perhaps skin picking disorder and trichotillomania may belong in a category of ‘impulsive and compulsive disorders’. There is substantial overlap between impulsive and compulsive symptoms hypothesized to arise due to common predisposing vulnerability factors [32–35]. Of course it could also speak to the heterogeneity of skin picking disorder with some people having shared clinical and possibly biological elements in common with those with trichotillomania while others have links to ADHD or OCD. The high rates of comorbidity with depression and anxiety disorders may be an artifact of sampling, as individuals who present for treatment research may be experiencing higher levels of psychiatric-related disability, whereas those whose problems are limited to skin picking may be less likely to seek help even in research studies.

The family history data add more complexity to the picture. Common findings in the families of people with skin picking were skin picking disorder or trichotillomania, depression, and alcohol/substance use disorders. These data again could reflect the heterogeneous familial/genetic underpinnings of what drives skin picking with some picking characterized as affectively driven while others have an addictive quality to their picking. OCD was not reported as common in first-degree relatives and so again makes one question the concept of an OCD spectrum with skin picking disorder.

In addition to nosological issues, these data also suggest that as common as skin picking appears to be [15], few people receive treatment of any kind for their picking. In fact, only one in five people with skin picking disorder had received any treatment for their problem. Although reasons for this low percentage remain open to conjecture, the fact that these people came for a research study shows that in part they were actively seeking some type of help and so we are left with the impression that finding treatment was more the issue than not wanting treatment. Interestingly, the large majority of those who had received psychotherapy or medication treatment for their skin picking disorder found it to be helpful. We did not have access to information about the precise types of psychotherapies participants had received; but for medications, we noted that individuals reported a diverse range of treatments received but more commonly classes such as mood stabilizers, antipsychotic medication, serotonin reuptake inhibitors, mixed

reuptake inhibitors, and psychostimulant treatments. Only some of these medication classes have been evaluated in clinical trials for skin picking disorder [for review see [23]. It is interesting that no participants reported being treated with *n*-acetyl cysteine, which is one of few treatments with positive data from a randomized controlled trial [36]; however, this could reflect the relative recency of the clinical trial in question.

There are important limitations to this study. First, the sample for the present study was recruited from a diverse group of research studies, with slightly varying inclusions and exclusion criteria, and the recruitment method for each study may have varied slightly. Although this may have brought certain biases into the current study, the background research protocols were generally all performed with essentially the same major exclusion/inclusion criteria, recruitment was also generally done in the same fashion. Second, family history was collected from the participants, not the first-degree relatives. Thus, this could have over- or under-estimated some counts. Third, for purposes of skin picking characteristics, a semi-structured clinical interview was used instead of a structured interview. Finally, the findings of this study may not be generalizable to clinical practice situations since all participants were part of various research studies. A large community-based study or even a systematic study of treatment-seeking population attending clinical services may add to the literature.

In conclusion, this large scale in-person assessment of people with skin picking disorder shows that the disorder typically involves multiple sites on the body (most frequently the face), is associated with significant comorbidity (especially impulsive-compulsive disorders, as well as depression and generalized anxiety disorder), and has a complex family history. It further shows that the vast majority of people affected have not received treatment; but the majority of those who had received treatment reported that it had been helpful. Further research on etiology and treatment of this disorder is clearly indicated.

## Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

## Declaration of interest

Dr. Grant has received research grants from Otsuka and Biohaven Pharmaceuticals. He receives yearly compensation from Springer Publishing for acting as Editor-in-Chief of the Journal of Gambling Studies and has received royalties from Oxford University Press, American Psychiatric Publishing, Inc., Norton Press, and McGraw Hill. Dr. Chamberlain’s involvement in this research was funded by a Wellcome Trust Clinical Fellowship (110049/Z/15/Z). He receives a stipend from Elsevier for editorial work. For the purpose of open access, the author has applied a CC BY public copyright license to any Author Accepted Manuscript version arising from this submission.

## References

- [1] American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*. 5th ed. 2013. Washington, DC.
- [2] Wilson E. *Lectures on dermatology: Delivered in the Royal College of Surgeons of England, 1874–1875*. London: J and A Churchill; 1875.
- [3] Arnold LM, McElroy SL, Mutasim DF, Dwight MM, Lamerson CL, Morris EM. Characteristics of 34 adults with psychogenic excoriation. *J Clin Psychiatry* 1998 Oct;59(10):509–14. <https://doi.org/10.4088/jcp.v59n1003> [PMID: 9818631].
- [4] Wilhelm S, Keuthen NJ, Deckersbach T, Engelhard IM, Forker AE, Baer L, et al. Self-injurious skin picking: clinical characteristics and comorbidity. *J Clin Psychiatry* 1999 Jul;60(7):454–9. <https://doi.org/10.4088/jcp.v60n0707> [PMID: 10453800].
- [5] Keuthen NJ, Deckersbach T, Wilhelm S, Hale E, Fraim C, Baer L, et al. Repetitive skin-picking in a student population and comparison with a sample of self-injurious skin-pickers. *Psychosomatics*. 2000 May-Jun;41(3):210–5. <https://doi.org/10.1176/appi.psy.41.3.210> [PMID: 10849452].

- [6] Odlaug BL, Grant JE. Clinical characteristics and medical complications of pathologic skin picking. *Gen Hosp Psychiatry* 2008 Jan-Feb;30(1):61–6. <https://doi.org/10.1016/j.genhosppsych.2007.07.009> [PMID: 18164942].
- [7] Neziroglu F, Rabinowitz D, Breytman A, Jacofsky M. Skin picking phenomenology and severity comparison. *Prim Care Companion J Clin Psychiatry* 2008;10(4):306–12. <https://doi.org/10.4088/pcc.v10n0406>. PMID: 18787665; PMCID: PMC2528223.
- [8] Schuck K, Keijsers G, Rinck M. Implicit processes in pathological skin picking: responses to skin irregularities predict symptom severity and treatment susceptibility. *J Behav Ther Exp Psychiatry* 2012 Mar;43(1):685–91. <https://doi.org/10.1016/j.jbtep.2011.09.004>. Epub 2011 Sep 16. PMID: 21979149.
- [9] Tucker BT, Woods DW, Flessner CA, Franklin SA, Franklin ME. The skin picking impact project: phenomenology, interference, and treatment utilization of pathological skin picking in a population-based sample. *J Anxiety Disord* 2011 Jan;25(1):88–95. <https://doi.org/10.1016/j.janxdis.2010.08.007>. Epub 2010 Aug 13. PMID: 20810239.
- [10] Flessner CA, Woods DW. Phenomenological characteristics, social problems, and the economic impact associated with chronic skin picking. *Behav Modif* 2006 Nov;30(6):944–63. <https://doi.org/10.1177/0145445506294083> [PMID: 17050772].
- [11] Pirdoğan Aydın E, Güler Kenar J, Kivanç Altunay İ, Gökovaı Beğenen A, Kuvılcım Y, Özer ÖA, et al. Clinical characteristics and comorbidities of patients with trichotillomania and skin picking disorder who admitted to a psychodermatology outpatient clinic: a comparative study. *Türk Psikiyatri Derg* 2021;32(2):100–8. Summer. English, Turkish, <https://doi.org/10.5080/u25437> [PMID: 34392506].
- [12] Gupta MA, Gupta AK, Haberman HF. The self-inflicted dermatoses: a critical review. *Gen Hosp Psychiatry* 1987 Jan;9(1):45–52. [https://doi.org/10.1016/0163-8343\(87\)90101-0](https://doi.org/10.1016/0163-8343(87)90101-0) [PMID: 38174601].
- [13] Grant JE, Odlaug BL, Chamberlain SR, Keuthen NJ, Lochner C, Stein DJ. Skin picking disorder. *Am J Psychiatry* 2012 Nov;169(11):1143–9. <https://doi.org/10.1176/appi.ajp.2012.12040508> [PMID: 23128921].
- [14] Keuthen NJ, Koran LM, Aboujaoude E, Large MD, Serpe RT. The prevalence of pathologic skin picking in US adults. *Compr Psychiatry* 2010 Mar-Apr;51(2):183–6. <https://doi.org/10.1016/j.comppsy.2009.04.003> [PMID: 20152300].
- [15] Grant JE, Chamberlain SR. Prevalence of skin picking (excoriation) disorder. *J Psychiatr Res* 2020 Nov;130:57–60. <https://doi.org/10.1016/j.jpsychires.2020.06.033>. Epub 2020 Jul 29. PMID: 32781374; PMCID: PMC7115927.
- [16] Bohne A, Wilhelm S, Keuthen NJ, Baer L, Jenike MA. Skin picking in German students. Prevalence, phenomenology, and associated characteristics. *Behav Modif* 2002 Jul;26(3):320–39. <https://doi.org/10.1177/0145445502026003002> [PMID: 12080904].
- [17] First MB, Spitzer RL, Gibbon M, Williams JBW. Structured clinical interview for DSM-IV-patient edition (SCID-I/P, version 2.0). New York: Biometrics Research Department, New York State Psychiatric Institute; 1995.
- [18] Grant JE, Odlaug BL, Kim SW. Lamotrigine treatment of pathologic skin picking: an open-label study. *J Clin Psychiatry* 2007 Sep;68(9):1384–91. <https://doi.org/10.4088/jcp.v68n0909> [PMID: 17915977].
- [19] Guy W. ECDEU assessment manual for psychopharmacology. Rockville, MD: US Department of Health, Education, and Welfare Public Health Service Alcohol, Drug Abuse, and Mental Health Administration; 1976.
- [20] Sheehan DV. The anxiety disease. New York: Charles Scribner and Sons; 1983.
- [21] Hamilton M. The assessment of anxiety states by rating. *Br J Med Psychiatry* 1959;32:50–5.
- [22] Hamilton M. A rating scale for depression. *J Neurol Neurosurg Psychiatry* 1960;23:56–62.
- [23] Selles RR, McGuire JF, Small BJ, Storch EA. A systematic review and meta-analysis of psychiatric treatments for excoriation (skin-picking) disorder. *Gen Hosp Psychiatry* 2016 Jul-Aug;41:29–37. <https://doi.org/10.1016/j.genhosppsych.2016.04.001> [Epub 2016 Apr 13. PMID: 27143352].
- [24] Fullana MA, Mataix-Cols D, Caspi A, Harrington H, Grisham JR, Moffitt TE, et al. Obsessions and compulsions in the community: prevalence, interference, help-seeking, developmental stability, and co-occurring psychiatric conditions. *Am J Psychiatry* 2009 Mar;166(3):329–36. <https://doi.org/10.1176/appi.ajp.2008.08071006>. Epub 2009 Feb 2. PMID: 19188283; PMCID: PMC3818089.
- [25] Torres AR, Prince MJ, Bebbington PE, Bhugra DK, Brugha TS, Farrell M, et al. Treatment seeking by individuals with obsessive-compulsive disorder from the British psychiatric morbidity survey of 2000. *Psychiatr Serv* 2007 Jul;58(7):977–82. <https://doi.org/10.1176/ps.2007.58.7.977> [PMID: 17602015].
- [26] Mathes BM, Morabito DM, Schmidt NB. Epidemiological and clinical gender differences in OCD. *Curr Psychiatry Rep* 2019 Apr 23;21(5):36. <https://doi.org/10.1007/s11920-019-1015-2> [PMID: 31016410].
- [27] Walther MR, Flessner CA, Conelea CA, Woods DW. The Milwaukee inventory for the dimensions of adult skin picking (MIDAS): initial development and psychometric properties. *J Behav Ther Exp Psychiatry* 2009 Mar;40(1):127–35. <https://doi.org/10.1016/j.jbtep.2008.07.002>. Epub 2008 Jul 19. PMID: 18725154.
- [28] Rapp JT, Miltenberger RG, Galensky TL, Ellingson SA, Long ES. A functional analysis of hair pulling. *J Appl Behav Anal* 1999;32(3):329–37. <https://doi.org/10.1901/jaba.1999.32.329>. PMID: 10513028; PMCID: PMC1284196. Fall.
- [29] Stein DJ, Chamberlain SR, Fineberg N. An A-B-C model of habit disorders: hair-pulling, skin-picking, and other stereotypic conditions. *CNS Spectr* 2006 Nov;11(11):824–7. <https://doi.org/10.1017/s1092852900014978> [PMID: 17075554].
- [30] Grant JE, Leppink EW, Tsai J, Chamberlain SR, Redden SA, Curley EE, et al. Does comorbidity matter in body-focused repetitive behavior disorders? *Ann Clin Psychiatry* 2016 Aug;28(3):175–81. PMID: 27490833; PMCID: PMC5341762.
- [31] Kwon C, Sutaria N, Khanna R, Almazan E, Williams K, Kim N, et al. Epidemiology and comorbidities of excoriation disorder: a retrospective case-control study. *J Clin Med* 2020 Aug 21;9(9):2703. <https://doi.org/10.3390/jcm9092703>. PMID: 32825621; PMCID: PMC7564859.
- [32] Romero-García R, Hook RW, Tiego J, Bethlehem RAI, Goodyer IM, Jones PB, et al. Brain micro-architecture and disinhibition: a latent phenotyping study across 33 impulsive and compulsive behaviours. *Neuropsychopharmacology* 2021 Jan;46(2):423–31. <https://doi.org/10.1038/s41386-020-00848-9>. Epub 2020 Sep 12. PMID: 32919402; PMCID: PMC7116462.
- [33] Chye Y, Suo C, Romero-García R, Bethlehem RAI, Hook R, Tiego J, et al. Examining the relationship between altered brain functional connectome and disinhibition across 33 impulsive and compulsive behaviours. *Br J Psychiatry* 2021 May 5;220(2):1–3. <https://doi.org/10.1192/bjp.2021.49>. Epub ahead of print. PMID: 35049467; PMCID: PMC7612272.
- [34] Chamberlain SR, Stochl J, Redden SA, Grant JE. Latent traits of impulsivity and compulsivity: toward dimensional psychiatry. *Psychol Med* 2018 Apr;48(5):810–21. <https://doi.org/10.1017/S0033291717002185>. Epub 2017 Aug 14. PMID: 28805173; PMCID: PMC5699644.
- [35] Chamberlain SR, Tiego J, Fontenelle LF, Hook R, Parkes L, Segrave R, et al. Fractionation of impulsive and compulsive trans-diagnostic phenotypes and their longitudinal associations. *Aust N Z J Psychiatry* 2019 Sep;53(9):896–907. <https://doi.org/10.1177/0004867419844325>. Epub 2019 Apr 19. PMID: 31001986; PMCID: PMC6724459.
- [36] Grant JE, Chamberlain SR, Redden SA, Leppink EW, Odlaug BL, Kim SW. N-acetylcysteine in the treatment of excoriation disorder: a randomized clinical trial. *JAMA Psychiat* 2016 May 1;73(5):490–6. <https://doi.org/10.1001/jamapsychiatry.2016.0060> [PMID: 27007062].